

U/R ^{DWG}



Work Order ID 72997

Tuesday, August 23, 2011 10:07:58 AM

Page 1

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Installation, High Fwd

FAIL

Stop



Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/31/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date: 11-08-23

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D350-748-141

F

100



DC

Document Control

DOCUMENT CONTROL

Memo

Photocopy bluefile & type labels per D350-748-101 CHG002

SCRAP

110



CNC Bend 1

CNC Delta 100 Bender

BENDING MACHINE - CROSSTUBES

Memo

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

120



QC

Quality Control

QC15- Crosstube Dimensional Check

Memo

0.00

0.00

8/10/11

DP

11-9-28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 72997

Tuesday, August 23, 2011 10:07:58 AM



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Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/31/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

125

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

Stress relief

Heat treat crosstube as per QSI010 4.3

Temp: 375

Start time: 7h00 pm

Finish time: 11h00 pm

①

SAD 11-09-27

127

QC6- Inspect dimensions to drawing

0.00



QC

Memo

0.00

Quality Control

8 w/ 09/29

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Work Order ID 72997

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Item ID: D350-748-101

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Revision ID:

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/31/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

0.00



Crosstubes

Crosstubes

Memo

0.00

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs,
Set-up drill table as per QSI 010

2-Deburr

3-Engrave Part # and Batch # as per Dwg D350-748-141

4-Remove all marks from tube within limits of D350-748-141

5- Apply a light coat of LPS3 on the interior of tube

Batch: 77109956

(TW)
SAD 11-09-30

SAD 11-09-30

DL
SAD 11-09-30

140

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)

SAD 11-09-30

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Page 4

Item ID: D350-748-101

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Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/31/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 Outsource3 Outsource process - Cad plate	Outsource process-Cadplate per QSI017 4.1.9.1 Memo Issue P/O: <u>15070</u> Stress relief at 375° for 5 hours Magnetic Particle Inspect per ASTM E1444 Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2 Embrittle relief at 375° for 8 hours, Chromate Treat Possible Supplier: Southwest United Industries Ensure Certificate of Conformity is attached	0.00 0.00							
160 Packaging Packaging	Receive & Inspect for Damage & Mat'l Certs Memo Ensure certificate of conformity is attached	0.00 0.00							
170 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00							

u 11-09-30

u 11-10-07

PTO

★ SEE W/O CAG ATTACHED

Sulola

W/O: 72997		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-748-101 PAR #: _____ Fault Category: X - false NCR: Yes No DQA: H Date: 11-10-25
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: ck Date: 11/10/25

NCR: 11-917		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/10/19	step 170	Tube has two cracks Per D. Stow	11/10/19 251042	Scrap and identify as scrap. Give to eng.	11-10-19	11/10/19	11/10/19 251042	11-10-11
		Fault is not determined at this time. RC: Process						

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
11.10.07	161	LOAD TUBE TO 3560 ^{1/2} FOR 1 MINUTE PER D.S. EMAIL.	CP	11.10.07	1	CP 11.10.07 DS/042		
11.10.07	162	NDT tube PO 15121	CP	11-10-11	1	CP 11.10.07 DS/042		

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Chris Provencal

From: David Shepherd <dshepherd@dartaero.com>
Sent: Tuesday, April 27, 2010 3:40 PM
To: 'Mike Petsche'
Cc: 'Bill Beckett'; 'L Lacelle'; 'Chris Provencal'; 'Dan Stow'; ssheldon@dartaero.com
Subject: 350 crosstubes

Mike,

I discussed the 350 crosstube load testing with Bill a little while ago and this plan makes sense to him.

So, my recommendation to clear these crosstubes is to load the fwd crosstubes to 3500 lb and the aft crosstubes to 3000 lb in the deflection test rig and document on the work orders that this test has been completed. Hold max load for 1 minute. Per TP-D350-748-2, these loads represent the maximum load on these crosstubes at gross weight and are below the yield point of the material. I would like to request that Chris Provencal witness these tests and sign off the work orders based on his experience with Dart landing gears. My feeling is that if there is a problem with the parts, it will manifest itself during this load test. I, for one, would feel a lot more confident in testing each crosstube in this manner than relying totally on what Exova has to say. I think it would be very difficult to reach a conclusion on the whole batch on the basis of cracks in two parts from the batch.

I believe that we can accomplish this before next Friday, which also gives us time to hear what Exova has to say in case it has an impact on our decision. So far, what I have seen from Exova shows me that there are fluctuations in the heat treating but the tubes are heat treated to our specification.

For this reason, I believe we should tell DHS that it looks like we will be able to start shipping 350 crosstubes by May 7th pending a successful Engineering test of the material.

David.

Work Order ID 72997

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Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/31/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 SprayPaint Spray Painting	SprayPaint Memo 1-Prime inside crosstube as per QSI 005 4.2 2-Prime Outside of Tube as per Dart QSI 005 4.2	0.00 0.00							
190 QC Quality Control	QC14- Inspect Spray Paint Memo Then, Wrap in plastic bag to protect from scratches	0.00 0.00							
200 Crosstubes Crosstubes	Crosstubes Memo 1-Install Ground wire Insert, then insert screw and washer 2-Install Abraision strips as per Dwg D350-748-141 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS	0.00 0.00							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Work Order ID 72997

Tuesday, August 23, 2011 10:07:58 AM



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Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/31/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: Date: Tooling: Date:

Stop



QC: Date: SPC (Y/N): Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00							
220 Packaging Packaging	Pick Kit Memo	0.00 0.00							
230 QC Quality Control	QC4- 100% Inspect kits for completeness Memo	0.00 0.00							

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Work Order ID 72997

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Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/31/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D350-748-101 Location: _____ PPP Rev: _____								
250		0.00							
	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

11-10-18

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

Picklist Print

Page 1

Tuesday, August 23, 2011 10:08:03 AM

Work Order ID: 72997

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 06-07-05 JLM
 IPP Rev:B Update qty of MS21042L5 06-09-12 KJ
 IPP Rev:C Rev B 07-11-15 DD
 IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD
 IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F
 10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-141TRN		Manufactured	No			110	Each	0.0000	1	1			
						B70652							
Crosstube Turning Detail													
ALS4-1032-225		Purchased	No			200	Each	931.0000	1	1			
Insert													

Location	Loc Qty	Loc Code
ST282	931	
110768	62	
117717	9	
118386	860	

AN960JD10	NAS1149D0363J	Purchased	No			200	Each	0.0000	1	1			
Washer													
D2856-400		Manufactured	No			200	f	266.7845	1.181	1.243158			
Abraison Strip													

Location	Loc Qty	Loc Code
ST403	50.1149	
68076	50.1149	
ST409	216.6696	
63735	0.6696	
71164	216	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Tuesday, August 23, 2011 10:08:03 AM

Work Order ID: 72997



Parent Item: D350-748-101



Parent Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

D3502-1 Manufactured No

200

Each

25.0000

2

2



Support



Location

Loc Qty

Loc Code

ST063

25

61206

12

61843

3

64004

10

MS21920-20

Purchased

No

200

Each

102.0000

2

2



Clamp (per MIL-DTL-8783C)

Location

Loc Qty

Loc Code

LG050

102

116799

10

118236

42

118649

50

MS27039-1-10

Purchased

No

200

Each

299.0000

1

1



Screw

Location

Loc Qty

Loc Code

ST290

99

117441

99

ST291

200

118612

200

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Picklist Print

Tuesday, August 23, 2011 10:08:03 AM

Work Order ID: 72997



Parent Item: D350-748-101



Parent Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

AN4-41A Purchased No 220 Each 299.0000 8 8



Bolt

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST360	299	
115108	74	
115705	50	
116191	50	
117619	50	
117795	25	
118451	50	

AN4-6A Purchased No 220 Each 1,184.000 16 16



Bolt

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST356	984	
116924	84	
117872	200	
118422	300	
118628	400	
ST358	200	
117514	200	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Picklist Print

Tuesday, August 23, 2011 10:08:04 AM

Work Order ID: 72997

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

AN5-32A Purchased No 220 Each 222.0000 4 4



Bolt

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST339	50	
118628	50	
ST340	172	
117161	1	
117514	11	
117872	60	
118191	50	
118422	50	

AN960JD416 NAS1149D0463J Purchased No 220 Each 0.0000 32 32



Washer

AN960JD516 NAS1149D0563J Purchased No 220 Each 0.0000 8 8



Washer

D3500-1 Manufactured No 220 Each 32.0000 4 4



Saddle

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST424	9	
66127	9	
ST424/25	20	
62207	20	
ST425	3	
61838	3	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Tuesday, August 23, 2011 10:08:04 AM

Work Order ID: 72997



Parent Item: D350-748-101



Parent Item Name: Crosstube Installation, High Fwd

Start Date: 8/23/2011

Required Date: 8/31/2011

Start Qty: 1.00

Required Qty: 1.00

D3501-1 Manufactured No

220 Each

321.0000 16 16



Bushing

Location

Loc Qty

Loc Code

ST063

221

61984

19

68939

102

70682

100

ST066

100

67757

100

MS21042L4 Purchased No

220 Each

4,639.000 24 24



Nut

Location

Loc Qty

Loc Code

ST300

4639

117441

494

117601

645

117885

1500

118451

2000

MS21042L5 Purchased No

220 Each

1,185.000 4 4



Nut

Location

Loc Qty

Loc Code

ST300

1185

116105

5

116548

53

117441

498

117591

43

117611

90

118179

496

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

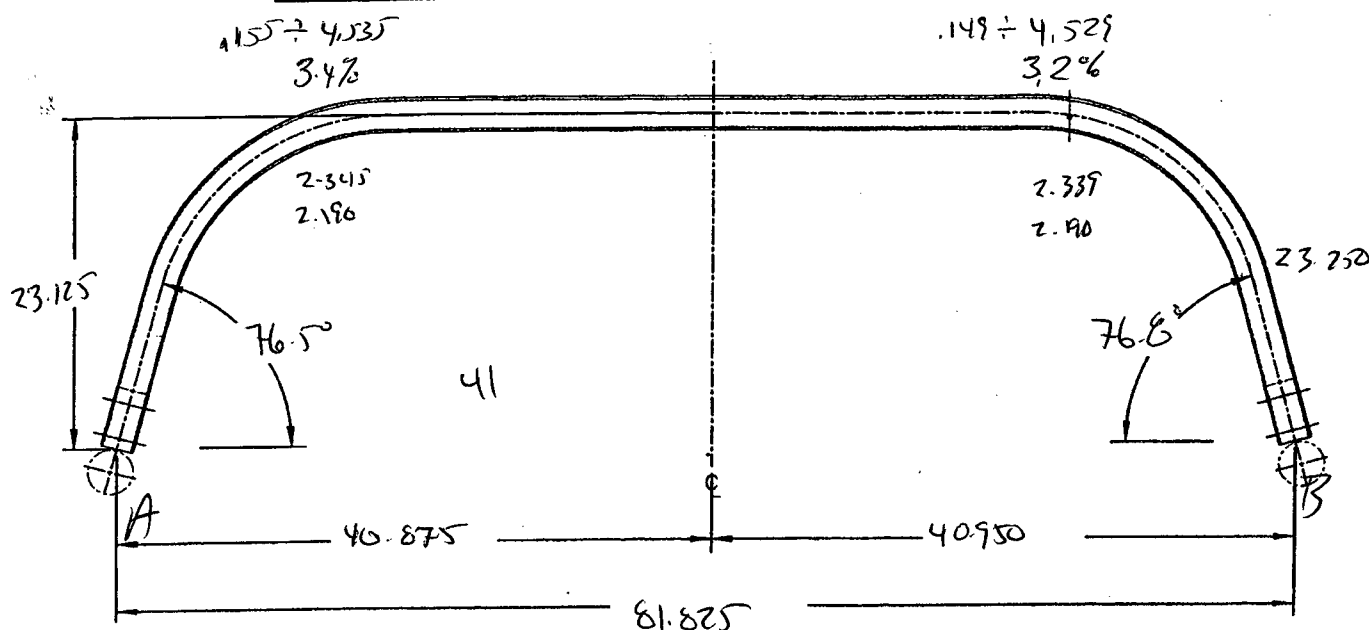
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	72997
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
Just 20-354"
Side A = 3.4% crushy @ 41 passes
Side B = 3.2% crushy @ 38 passes
Both Bend and twist OK CP 11.05.28 QJ 012

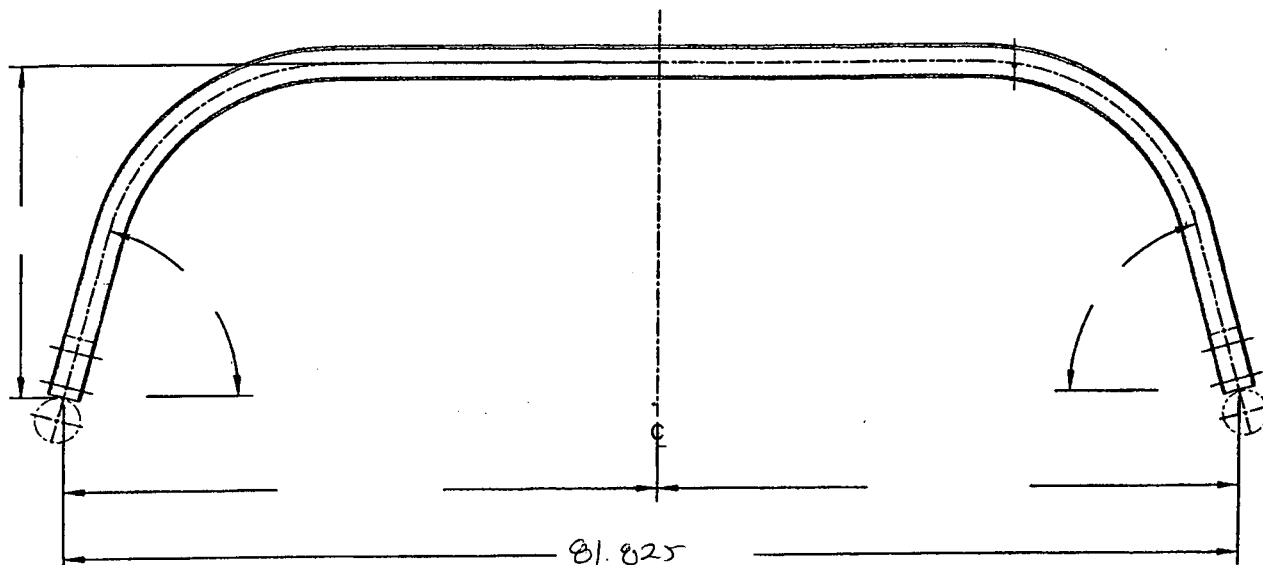
QC15 Inspection	δ
Date	10/09/09

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

DART AEROSPACE LTD		Work Order:	7282
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: E		Page 1 of 1	

Stress Relief only

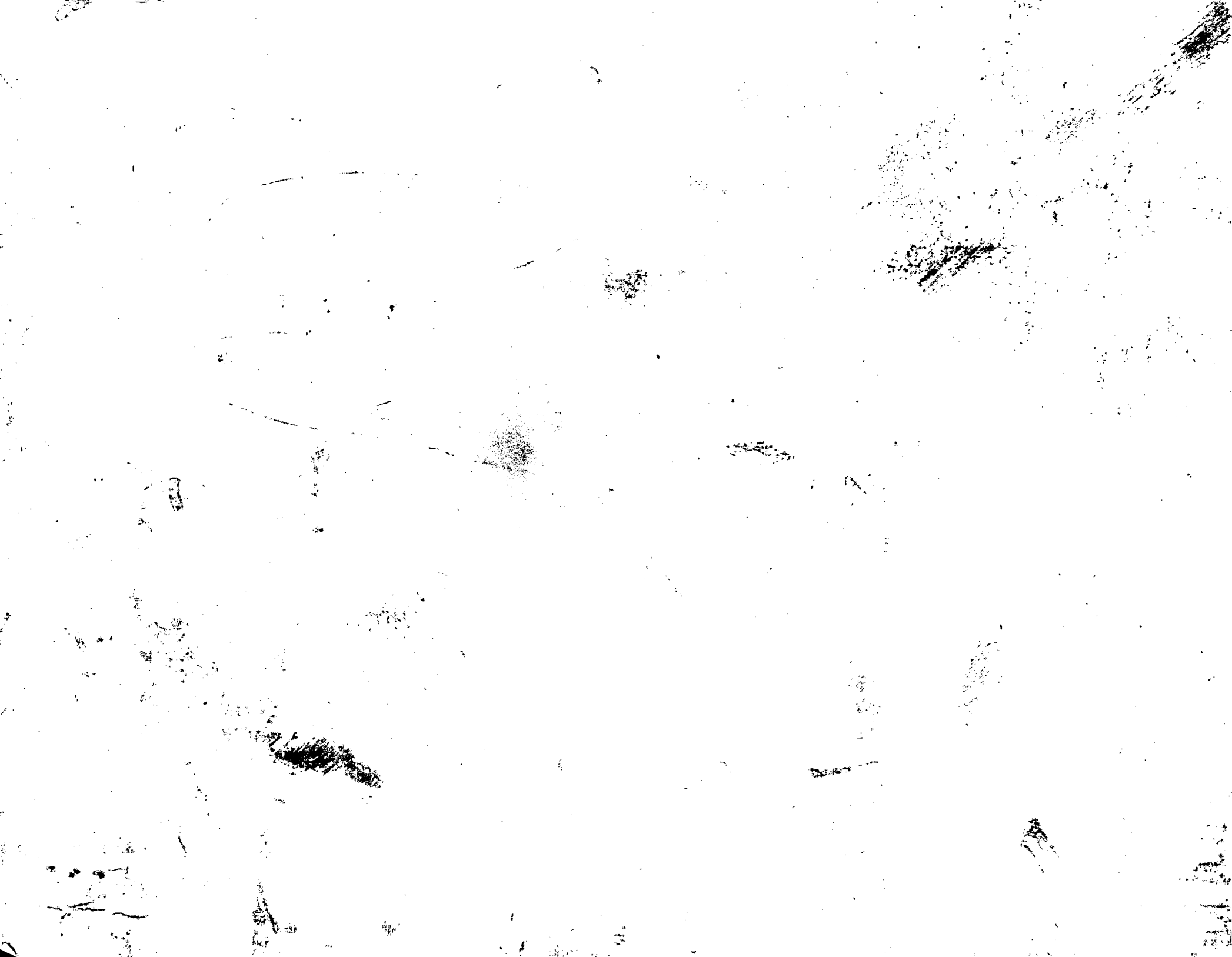
Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
<i>First 2,302 "</i>

QC15 Inspection	<i>S</i>
Date	11/05/29

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	<i>[Signature]</i>



Item	Qty -141	Part Number	Description
1	X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
2	1	D6015-125	CROSSTUBE (OR D6017-115)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6017-115
FINISHED LENGTH = 110.270±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO
BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO
VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE,
CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES,
NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY.
CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE
MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO
CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT
NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN
CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

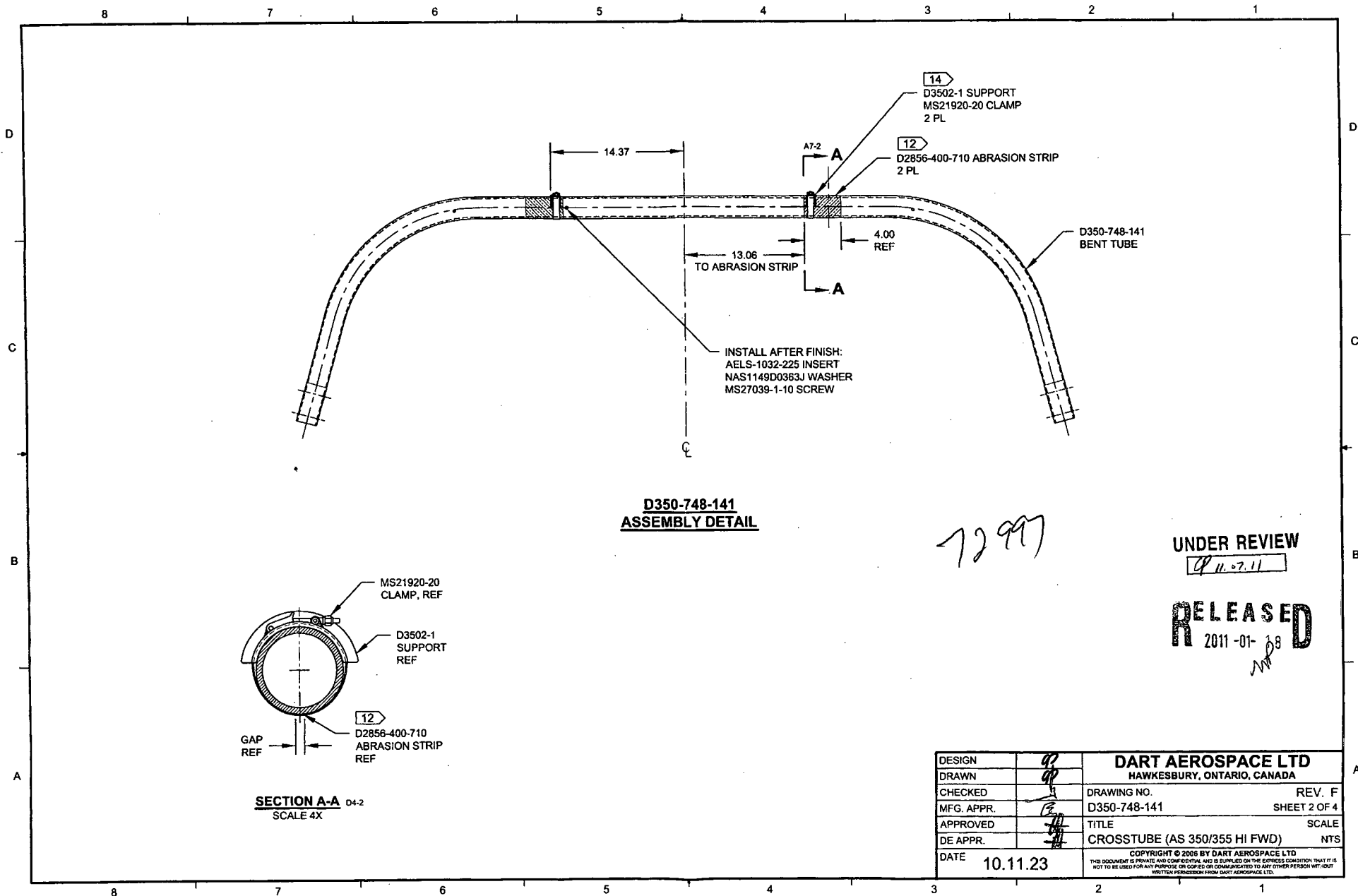
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WITHOUT NOTICE
WORK ORDER
NO. 72227

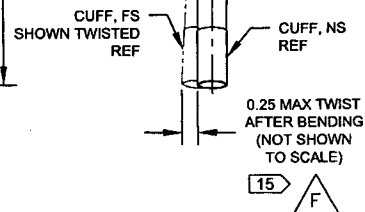
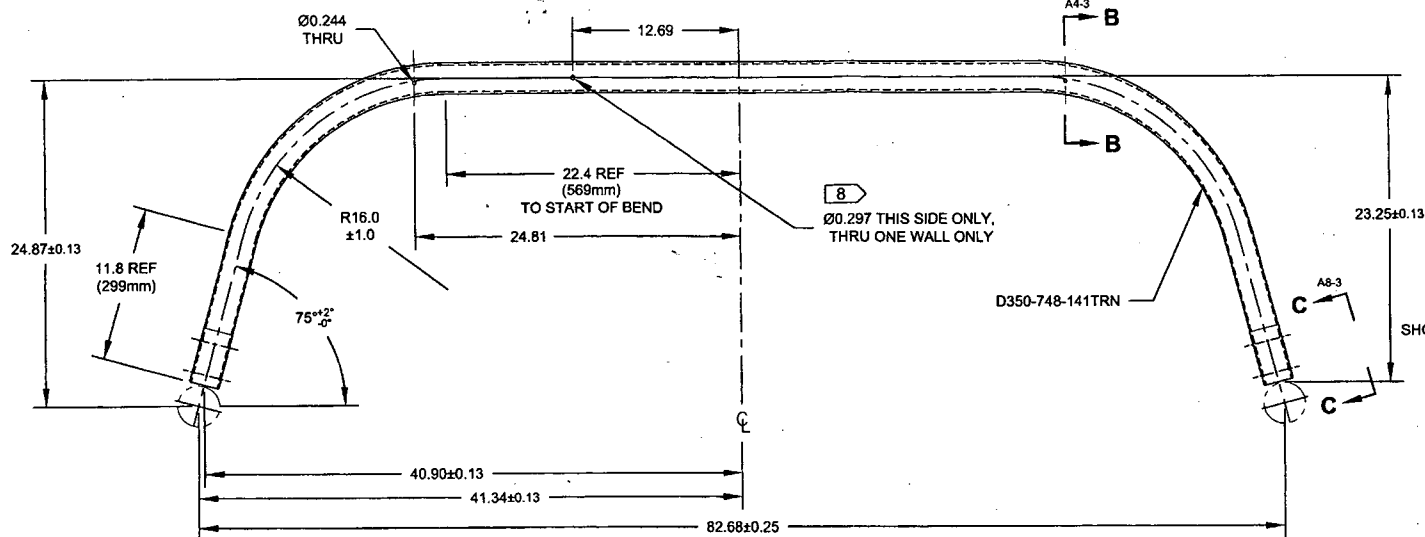
UNDER REVIEW

RELEASED
2011-01-18

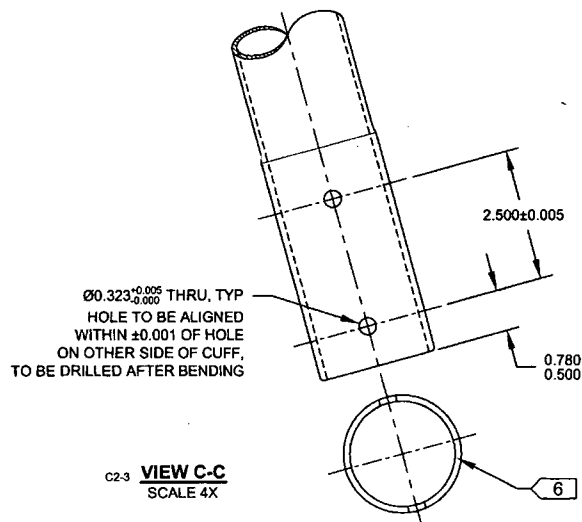
F	ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)	CP	10.11.23
E	REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6017-115 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.11.23		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D350-748-141	REV. F SHEET 1 OF 4
TITLE CROSSTUBE (AS 350/355 HI FWD)	SCALE NTS
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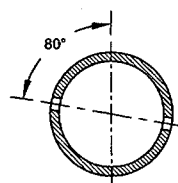




D350-748-141
BENDING AND DRILLING DETAIL 10



C2-3 **VIEW C-C**
 SCALE 4X



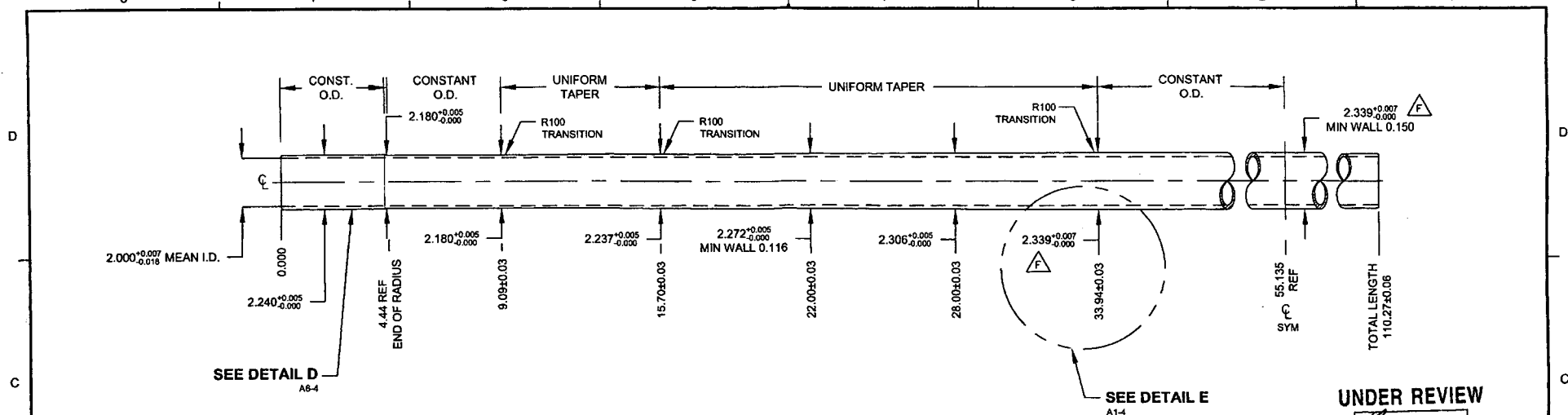
SECTION B-B D3-3
 SCALE 4X

UNDER REVIEW

RELEASED
 2011-01-16

DESIGN	72997	DART AEROSPACE LTD	
DRAWN	72997	HAWKESBURY, ONTARIO, CANADA	
CHECKED	72997	DRAWING NO.	REV. F
MFG. APPR.	72997	D350-748-141	SHEET 3 OF 4
APPROVED	72997	TITLE	SCALE
DE APPR.	72997	CROSSTUBE (AS 350/355 HI FWD)	NTS
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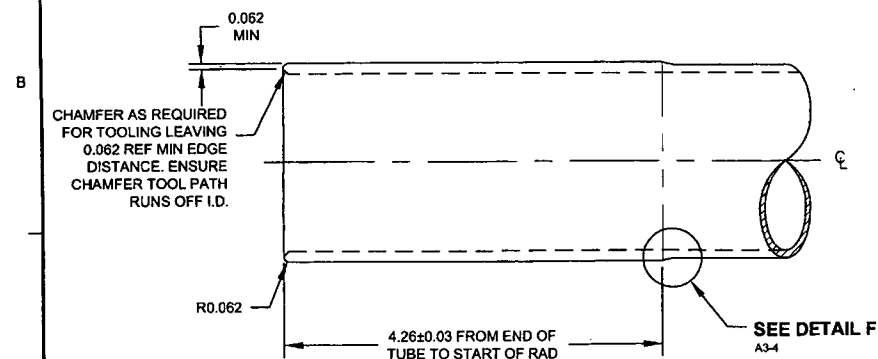
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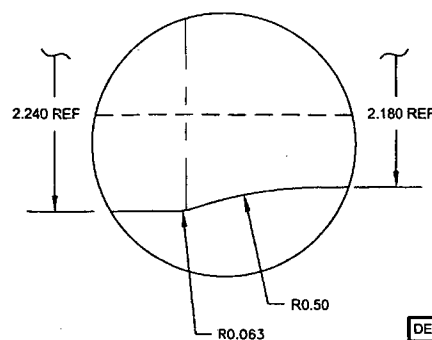
**D350-748-141TRN
TURNING DETAIL**

UNDER REVIEW

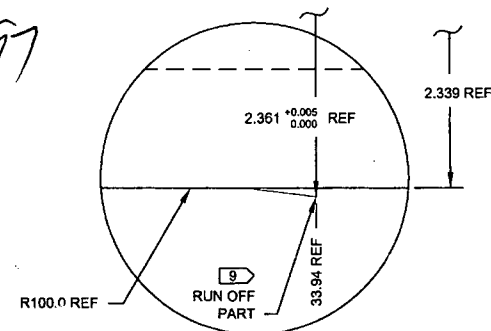
11.07.12



**DETAIL D:
CROSSTUBE CUFF** C7-4
SCALE 3X



**DETAIL F:
CUFF TRANSITION** A5-4
NOT TO SCALE



**DETAIL E:
TAPER RUN-OFF** C3-4
NOT TO SCALE

RELEASED
2011-01-18

DESIGN		DART AEROSPACE LTD
DRAWN		HAWKESBURY, ONTARIO, CANADA
CHECKED		DRAWING NO. REV. F
MFG. APPR.		D350-748-141 SHEET 4 OF 4
APPROVED		TITLE SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI FWD) NTS
DATE	10.11.23	

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**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Oct-05-2011

CONSIGNEE TO: Dart Aerospace Ltd.
1270 Aberdeen St.
Hawksbury, ON K6A 1K7

W/O #: 108222
INVOICE #: 57013

**CONTRACT OR
PURCHASE ORDER #**

PO15070

DESCRIPTION: SKID

QTY 1

P/N # d350-748-101

S/N # 072997

STRESS RELIEF BAKE @ 375 DEG. FOR 5 HRS. MPI IAW ASTM-E-1444. CADMIUM PLATED IAW AMS-QQ-P-416C, TYPE 2 YELLOW, CLASS 1. HYDROGEN EMBRITTLEMENT BAKE @ 375 DEG. FOR 8 HRS. BAKE HEAT CHARTS #11-1036 & #11-1040.

8/11/07

CERTIFICATE: I certify that the items indicated here on have been inspected and tested and conform to all specifications and requirements detailed on the contract or purchase order.

Approved Inspector:



Packing Slip



Cadorath Coating

2150 Logan Avenue, Winnipeg, Manitoba R2R-0J2

Phone: (204) 633-9420 Fax: (204) 633-8033

INVOICE NUMBER:

57013

Sold To:

Dart Aerospace Ltd.
1270 Aberdeen St.

Hawksbury, ON K6A 1K7

ShipTo:

Net 2% Interest Per Month charged on Overdue Accounts.
Any claims for shortages, overcharges, or damaged goods must
be made within seven (7) days from receipt of goods.

Customer Order #: PO15070
Date Received: Oct-03-2011

Terms: NET 30 DAYS

G.S.T. #: 10071 6547 RT0001

Ship Via:

Ship Date:
Oct-05-2011

Item # Qty P/N & Description

1	1 EA	SKID
		P/N d350-748-101
2	1 EA	SKID
		P/N d350-748-101
3	1 EA	SKID
		P/N d350-748-101
4	1 EA	SKID
		P/N d350-748-101

S/N B72998
W/O 108219
S/N B72999
W/O 108220
S/N B66923
W/O 108221
S/N D72997
W/O 108222

Packing Slip



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1	1 EA	SKID	S/N B72998
		P/N d350-748-101	W/O 108219
2	1 EA	SKID	S/N B72999
		P/N d350-748-101	W/O 108220
3	1 EA	SKID	S/N B66923
		P/N d350-748-101	W/O 108221
4	1 EA	SKID	S/N D72997
		P/N d350-748-101	W/O 108222



003427

Client : DART AEROSPACE
 Contact : LINDA
 Lieu de travail : 1270, ABERDEEN ST, HAWKESBURY, ONT. K6A1K7
 Description : FPI ON X-TUBES
 # Rapport : P-12176

Travail : _____ Date : 2016-07
 Jour : Dim Lun Mar Mer Jeu Ven Sam
 # P.O. : 30 551
 # Véhicule : _____ W.O. # : 188-11-02370
 Caméra # : _____

[illegible]

Consumables : _____

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Équipement : _____

Représentant Client : X

Eric Downing 11/4/07

Cochez la case appropriée à la liste de sécurité-radiation

V/C	VÉRIFICATION CAMÉRA
V/E	VÉRIFICATION ÉQUIPEMENT SÉCURITÉ
V/D	VÉRIFICATION AVEC DÉTECTEUR DE RADIATION
B/I	BARRIÈRE & PANNEAUX INSTALLÉS
C/V	CAMÉRA VERROUILLÉE & ENTREPOSÉE SÉCURITAIREMENT
C/S	CAMÉRA SONDÉE APRÈS CHAQUE UTILISATION

NOTES: WAITING TIME (3^{1/2} HOURS)

pieces was not received

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